Part 2

GENERAL DESCRIPTION OF MECHANISM

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FUNCTION OF SENSORS AND MECHANISM

1. FIRST PAPER FEED AREA

[FUNCTION OF SENSORS]

1. **Paper Detection Sensor**
   The Paper Detection Sensor detects whether there is any paper on the Paper-Feeding Table.

2. **Upper Limit Sensor**
   The Upper Limit Sensor detects the position of the paper on the Paper-Feeding Table to obtain the correct height for paper-feed.

3. **Lower Limit Switch**
   The Lower Limit Switch detects the position of the Paper-Feeding Table to stop the Elevator Motor rotation.

4. **Safety Switch**
   When the Safety Switches are on, the movement of the Paper-Feeding Table stops.

5. **Paper-Feeding Table Sensor**
   The Paper-Feeding Table Sensor detects whether the Table is closed or open.

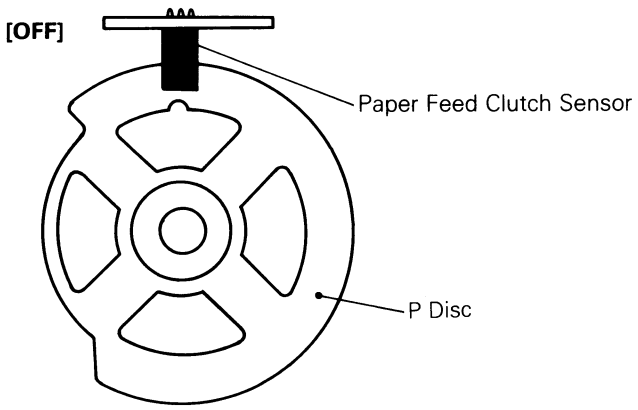
6. **Paper Feed Clutch Sensor**
   (1) While the Paper Feed Clutch Sensor does not detect the P Disc, the Paper Feed Clutch is operating, which has the Pickup Roller and Scraper Roller rotate and a sheet of paper fed to the Second Paper Feed Area.
   (2) While the Paper Feed Clutch Sensor detects the P Disc, the Paper Feed Clutch does not operate, for the Pickup Roller and the Scraper Roller not to rotate.
   Note:
   Only when the Print signal is output, the Paper Feed Clutch operates.

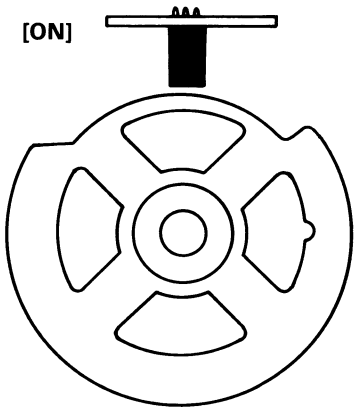
7. **Stack Paper Feeding Switch**
   The Stack Paper Feeding Switch detects the paper stack feed during printing.

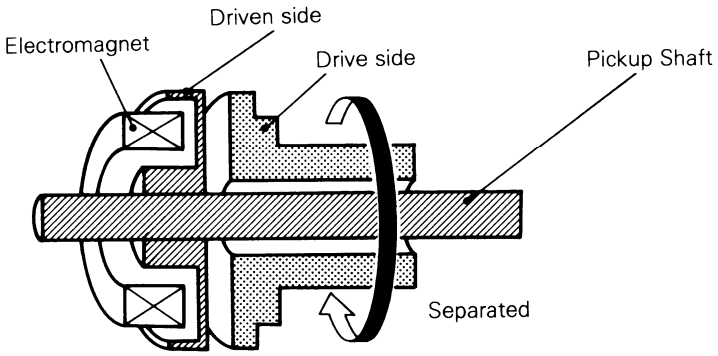
[MECHANISM]

1. The First Paper Feed Area feeds the printing paper one by one to the Second Paper Feed Area.
2. When the Print Start button is pressed, the Paper-Feeding Table elevates automatically. Then the amount of paper on the Table gradually decreases with sheets of paper continuously fed one by one during printing, which causes the Scraper Roller position to be lower, while the lowering of the Scraper Roller is detected by the Upper Limit Sensor, which has the Table elevate a little. When there is no paper on the Table, the Table will lower automatically.
3. The Paper Feed Pressure is changeable within "Standard", "Medium", and "High" as required according to the type or weight of the paper. When it is set at the "High" position, the Paper Feed Pressure (or the Scraper Roller Pressure) is increased.

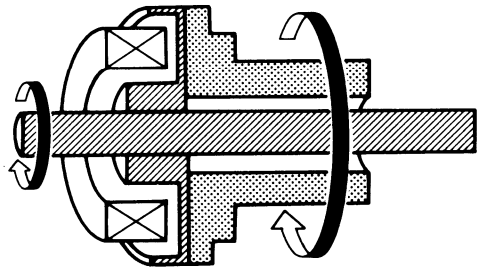
4. The Pickup Roller rotates only when the Paper Feed Clutch is operating during printing. The Base-Side Panel of the Paper Feed Clutch is constantly rotated by the Timing Drive Belt. When the Paper Feed Clutch Sensor is ON, which means the sensor does not detect the P Disc, the driving part of the Clutch is held by the electromagnetism of the Solenoid to the driven side, and the power of rotation is transmitted to the Pickup Shaft. Then the power of rotation is simultaneously transmitted to the Scraper Roller by the Paper Feed Belt, which causes the Pickup Roller and the Scraper Roller to rotate together.





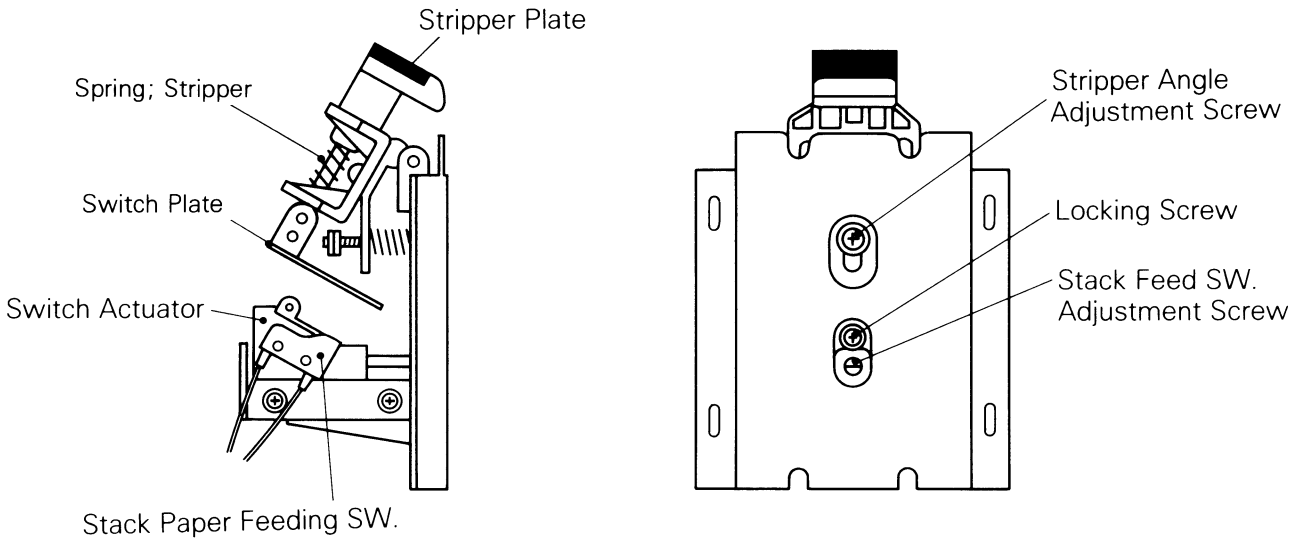


(The Clutch is disengaged)

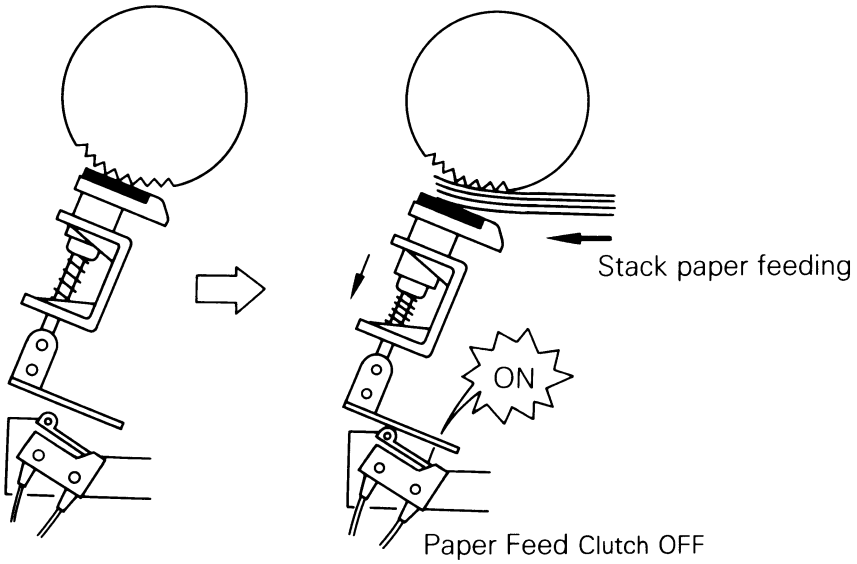


(The Clutch is engaged)

5. The construction of the Stripper Unit is as shown below.
   By turning the Stripper Angle Adjustment Screw, the angle at which the Stripper Plate is mounted can be changed, thus changing the Stripper Plate Pressure.



6. The Stack Paper Feeding Switch prevents problems such as belt disengagement from occurring when stack paper feeding happens.
   As shown below, when stack paper feeding happens, the Stripper Plate descends to the thickness of the paper, thus depressing the Stack Paper Feeding Switch. This in turn disengages the Paper Feed Clutch, stops the first paper feed, and causes [PAPER JAM: LEFT SIDE] to be displayed.



[TROUBLES DISPLAYED ON LCD]

[T2: CALL SERVICE]

1. When the Upper Limit Sensor does not detect the elevation of the Scraper Roller within 10 seconds after the beginning of the Paper-Feeding Table elevation. (The machine judges it as the abnormal elevation of the Paper Feeding Table.)
2. When the Lower Limit Switch is not pressed within 10 seconds after the lowering of the Paper-Feeding Table. (The machine judges it as the abnormal lowering of the Paper-Feeding Table.)

★ For adjustment, refer to **page 6** in **PART 3.**

2. SECOND PAPER FEED AREA

[FUNCTION OF SENSORS]

1. Paper Sensor

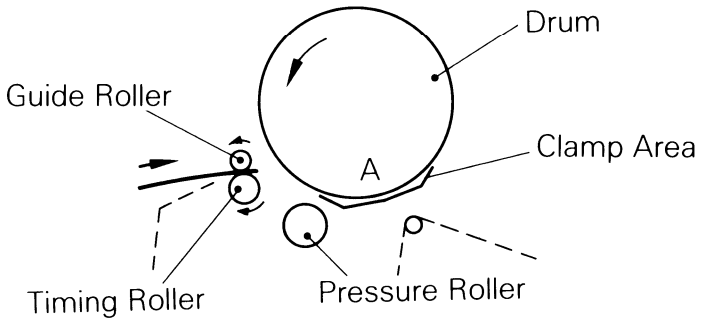
(1) The Paper Sensor detects the start of paper-feeding from the Second Paper Feed Area to the Print Area. It causes the Pressure Solenoid to operate, and the Pressure Roller is pressed against the Drum.

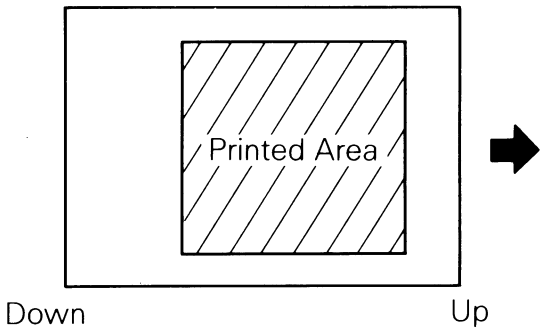
(2) The Paper Sensor is associated with the detection of Paper Jam Left.

[MECHANISM]

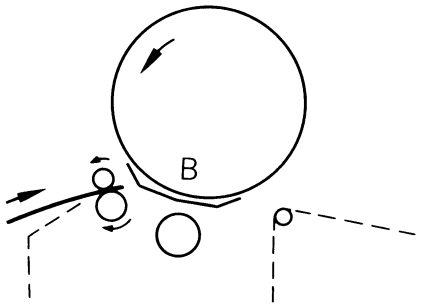
1. The Second Paper Feed Area has the function of changing the Vertical Printing Position by advancing and delaying the timing of paper-feeding to the Print Area.

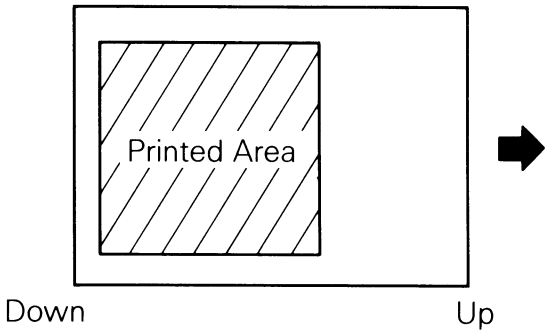
(1) Suppose the Guide Roller starts to rotate and feeds the paper to the Print Area when the Clamp Section of the Drum arrives at Point A in the figure. In this case, the printing position will be as shown in the figure below.





(2) Suppose the Guide Roller starts to rotate and feeds the paper to the Print Area when the Clamp Section of the Drum arrives at Point B in the figure. That is, the paper is fed at an earlier timing than in 1. In this case, the printing position will go down to the bottom side as shown in the figure below.





As described above, the Vertical Printing Position can be determined by the start time of the rotation of the Guide Roller.

2. The Timing Roller makes contact and rotates together with the Guide Roller, driven by the Guide Roller. When the paper is fed to the Print Area and the Pressure Roller comes into contact with the Drum, thus starting to print, the Timing Roller is separated from the Guide Roller and lowers to prevent the brake effect to the Drum.

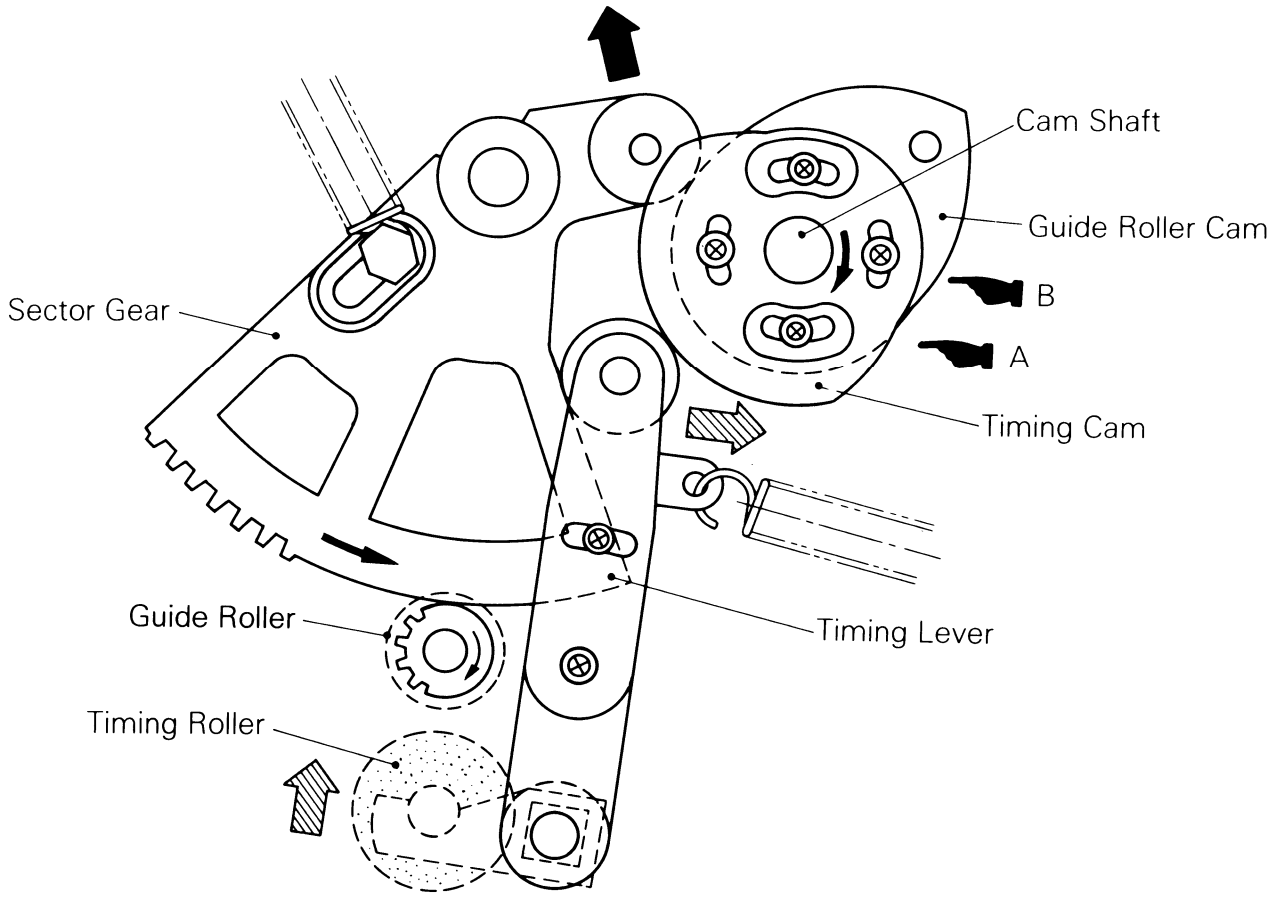
3. Movement of Rollers

The rotating power of the Guide Roller is transmitted from the Guide Cam via the Sector Gear. The Vertical movement of the Timing Roller is driven by the Timing Cam via the Timing Lever. The cam axis is rotating clockwise at the same rotation speed with the Drum, driven by the Timing Drive Belt. So when the section A of the Timing Cam arrives at the bearing of the Timing Lever, the Timing Lever is forced to move to the right by the tension of the Timing Spring, which causes the Timing Roller to elevate.

Next the section B of the Guide Roller Cam arrives at the bearing of the Sector Gear, which forces the Sector Gear to start moving to the right, thus making the Guide Roller start rotating.

Note:

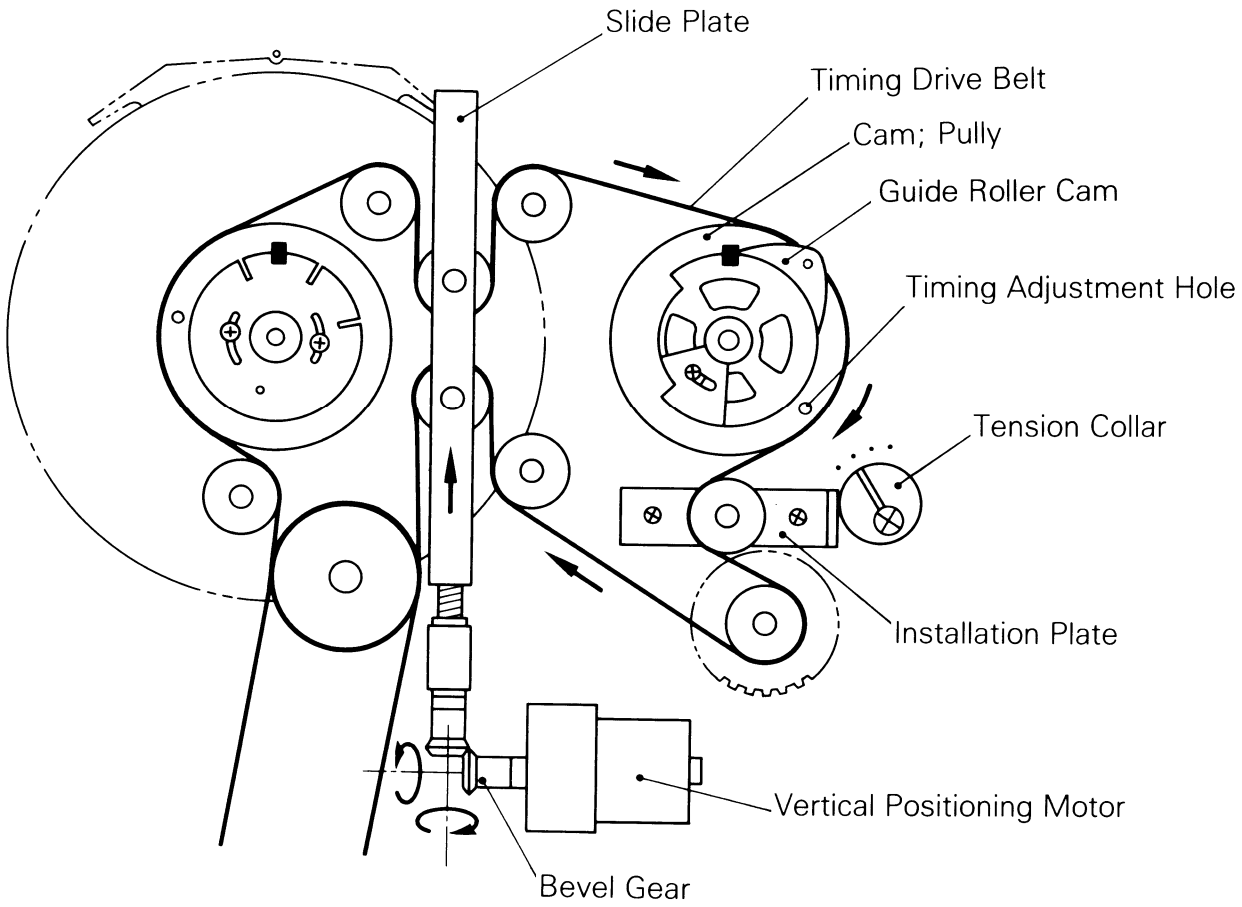
The figure below is in reference to the home (Magnet A Detection) position of the Drum.



4. Mechanism of Vertical Printing Position Adjustment

The vertical adjustment of the printing position is performed by the Slide Plate that moves up and down. The elevation and lowering of the Slide Plate causes the Timing Drive Belt to move, which in turn rotates the Guide Roller Cam and the Timing Cam. When the Printing Position Adjustment Button on the Operation Panel is pressed to the lower position, the Vertical Positioning Motor rotates and elevates the Slide Plate via the bevel gear.

Thus, the Timing Drive Belt moves to the right and the Guide Cam on the Cam Pulley rotates clockwise. As a result, the rotation start time of the Guide Roller is advanced, and the printed area is shifted down.



★ For adjustment refer to page **10** to **12** in **PART 3.**

3. PRINT AREA

[FUNCTION OF SENSORS]

1. Ink Sensor
The Ink Sensor detects the amount of ink in the Squeegee Unit. The consumption of ink causes the sensor to be out of touch with the ink pool.

2. Overflow Sensor
The Overflow Sensor detects the overflow of ink.

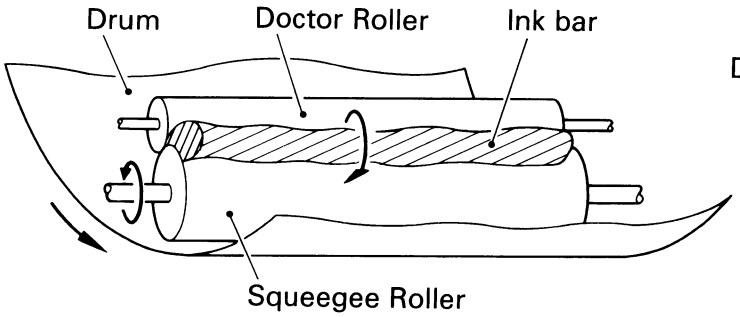
3. Ink Bottle Switch
The Ink Bottle Switch detects whether an ink bottle is installed in the Drum.

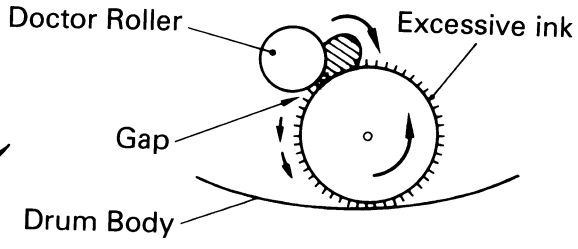
4. Drum Set Switch
The Drum Set Switch detects whether the Drum is correctly installed.

[MECHANISM]

1. The Squeegee Unit is installed in the Drum and supplies ink to the Drum. The operation of the Squeegee Unit is described below.
   (1) The Squeegee Unit consists of the Squeegee Roller, that rotates, and the Doctor Roller, that is fixed. These two rollers are installed close to each other. When ink is supplied between the two rollers, the ink is dispersed by the rotation of the Squeegee Roller and formed into a uniformly wide bar. (A drive axis is set in the ink to aid the rotation of ink.)

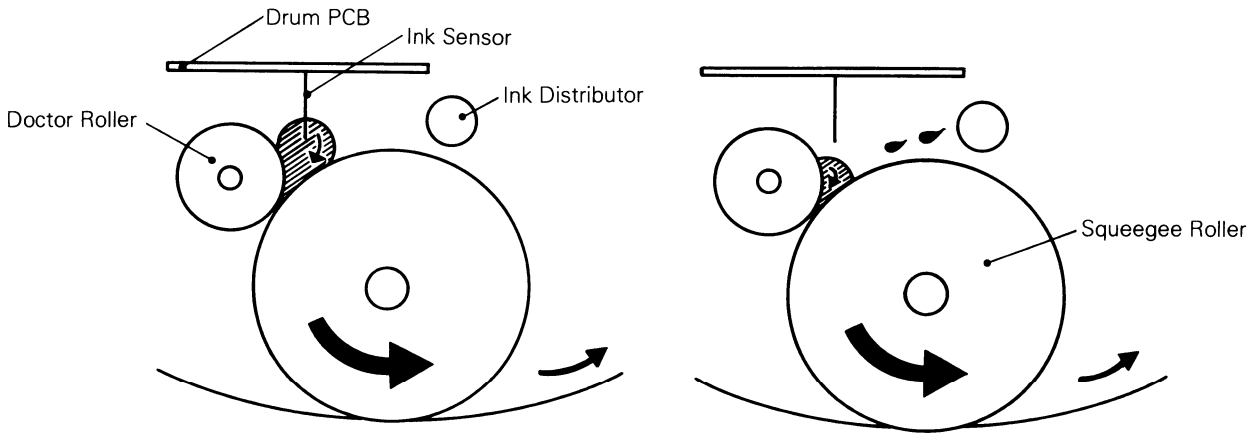
The ink which is applied to the Squeegee Roller through the gap between the two rollers is supplied to the inside of the Drum, and is then used for printing. When a certain amount of ink is supplied to the inside of the Drum, the excessive amount of ink is transferred to the Squeegee Roller and returns to the ink pool between the two rollers.





(2) Supply of ink (partial consumption)
When a large amount of printing is performed using the Master on which the image is made only on the right side, the ink only in the right side of the Squeegee Unit is consumed. Since the ink on the roller rotates in a bar form, the ink is stirred and transferred to the ink-consumed (less ink) area in order to maintain an uniformity of the ink bar.

(3) Supply of ink (overall consumption)
The ink Sensor (pin) is provided to sense the amount of ink in the Squeegee Unit. When ink is consumed in the printing process, the thickness of the ink bar becomes thin, which brings the tip of the Sensor pin out of touch with the ink bar. By this way it is detected that the amount of ink in the Squeegee Unit has decreased, and ink is supplied from an Ink Bottle to the Squeegee Unit by the Ink Pump.



[TROUBLES DISPLAYED ON LCD]

1. [T4: CALL SERVICE]

(1) When the light of the Overflow Sensor located on the Drum PCB is cut by the ink, the machine judges it as the occurrence of the overflow of ink.

2. [REPLACE INK BOTTLE]

(1) When the Ink Sensor pin does not get in touch with the ink bar and cause the Ink Motor to stop within 30 seconds since the Ink Motor starts to operate, the machine judges that the ink bottle is empty or that the ink is dried up.

★ For adjustment, refer to page **13** & **14** in **PART 3.**

4. DRIVE MECHANISM AREA

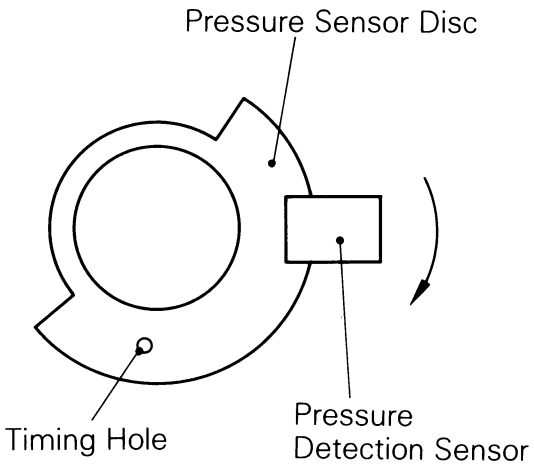
[FUNCTION OF SENSORS]

1. Pressure Detection Sensor

(1) The Pressure Detection Sensor provides the signal for the Pressure Solenoid to turn off when printing (Cut to no-cut).

(2) It changes the speed of the machine to 15rpm at the end of printing to locate the Magnet A position. (No-cut to cut)

(3) It also helps detect Paper Jam Right trouble.



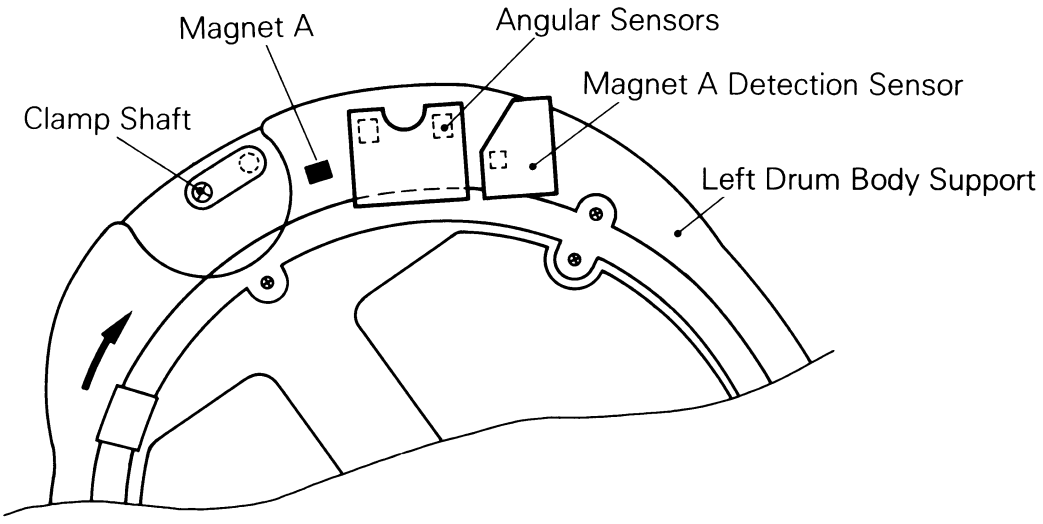
2. Encoder Sensor (on Main Motor)

The Encoder Sensor controls the main motor rotation by detecting the actual speed of rotation.

3. Magnet A Detection System

(1) The Magnet A Detection System checks the Drum position and detects if the Drum is at the home position (Clamp is just above the Drum).

(2) As shown below the Magnet A Detection sensor is equipped on the left side panel of the machine, and Magnet A is also equipped on the left drum body support. Both Magnet A and the Drum rotate together and come to the nearest position to the sensor when the Drum is at the home position. The sensor detects the magnetism of Magnet A and confirms the Drum is at the home position.



4. I Disc Detector System

(1) I Disc is installed on Main Shaft. There are 3 slits on I Disc as shown in the figure.

(2) The following operations are performed at every positions of I Disc:

[Master Removal]

I-1. position:

- The Master Sensor checks whether there is a master on the Drum or not.
  - **Yes** Detection of Master Removal Jam is ON.
  - **No** Detection of Master Removal Jam is OFF.

[Master Loading]

I-2. position:

- The rotation of the Drum is stopped at this position and the Master is cut.

I-3. position:

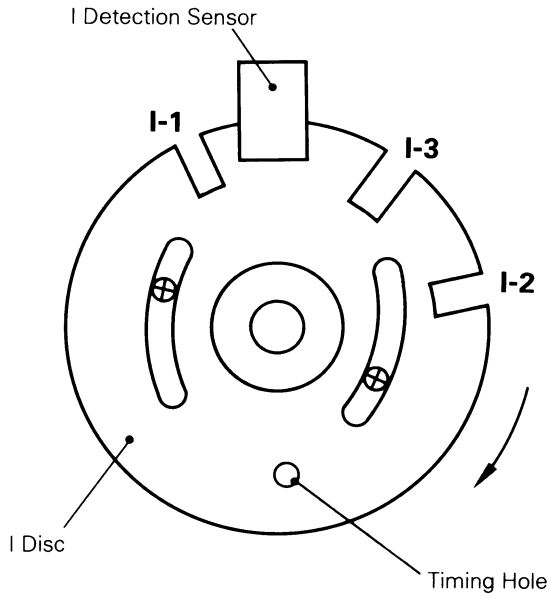
- Cut Error is checked by the Master Sensor.
  - **Cut Error** [MASTER CUT: MALFUNCTION] is displayed.
  - **No Error** The Master Counter increases by 1.

[Printing]

I-1. position:

- The Master Sensor checks whether there is a master on the Drum or not.
  - **Yes** Printing starts.
  - **No** [NO MASTER ON THE DRUM] is displayed and printing does not start.

(The figure below describes the I Disc position when the Drum has stopped at the home position.)

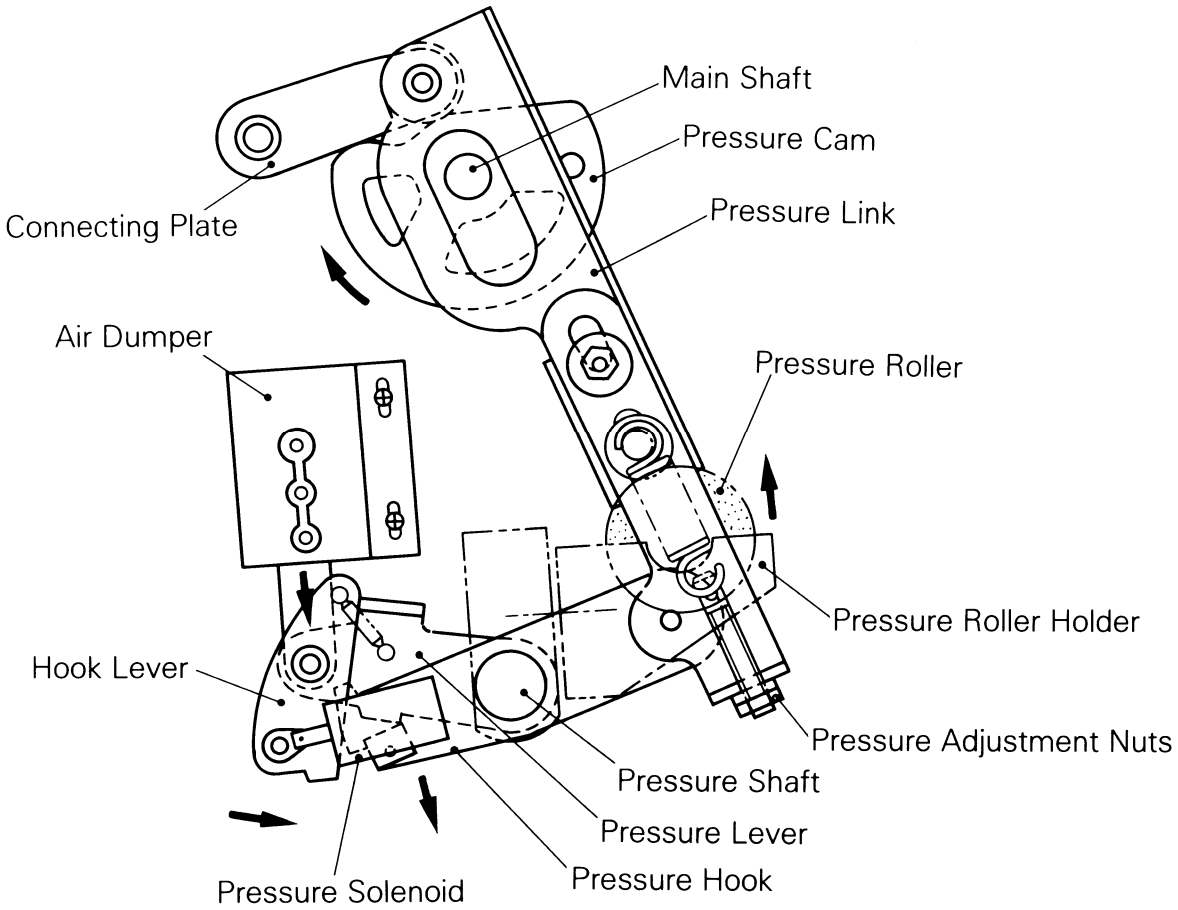


[MECHANISM]

1. Pressure Mechanism

The Pressure Cam rotates, and the Pressure Link is constantly moved up and down by this Cam. Thus the Pressure Hook moves constantly with the Pressure Shaft as fulcrum. When the Pressure Solenoid operates (the Plunger is pulled into the Solenoid) as the Pressure Hook can move downward, the Hook Lever moves to the right.

The left side of the Pressure Hook pulls the Hook Lever down and the Pressure Lever also moves downward. Then, the Pressure Roller moves upward, with the Pressure Shaft as fulcrum, and is pressed strongly to the Drum.



[TROUBLES DISPLAYED ON LCD]

1. [T1: CALL SERVICE]

(1) In the case Magnet A is under detection for over 5 seconds after starting printing.

(2) When it tooks over 7 seconds from one Magnet A Detection to the next Magnet A Detection during printing. (When the set value is 15rpm, 15 seconds are considered as abnormal status)

(3) In the case Magnet A is not detected within 15 seconds after printing just started, or Master making just started, or while the rotation is in free status.

★ For adjustment, refer to page **21** to **25** of **PART 3.**

5. PAPER RECEIVING AREA

[FUNCTION OF SENSORS]

1. Paper Receiving Sensor 1

The Paper Reveiving Sensor 1 detects whether the printed paper is present under the Separator Area and is passing through the Suction Unit during printing.

(1) During printing, when the trail edge of the paper passes through the Paper Receiving Sensor 1, the Total Counter increases by one (except for the test print).

(2) The Paper Receiving Sensor 1 detects Paper Jam Right in cooperation with other sensors.

2. Paper Receiving Sensor 2

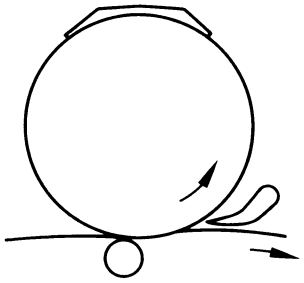
The Paper Receiving Sensor 2 detects the printed paper that passes through the exit of the Suction Unit during printing.

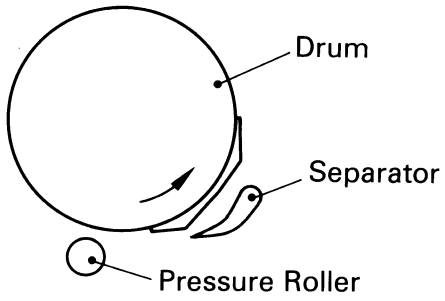
(1) The Paper Receiving Sensor 2 detects Paper Jam Right in cooperation with other sensors.

[MECHANISM]

The Separator helps the printed paper to be separated from the Drum and delivers it to the Paper Receiving Table.

1. During printing, the Separator is close to the Drum. When the Clamp Section comes close to the Separator, it must let the Clamp Section pass through.
This operation is performed by the Cam of the Drum hub.



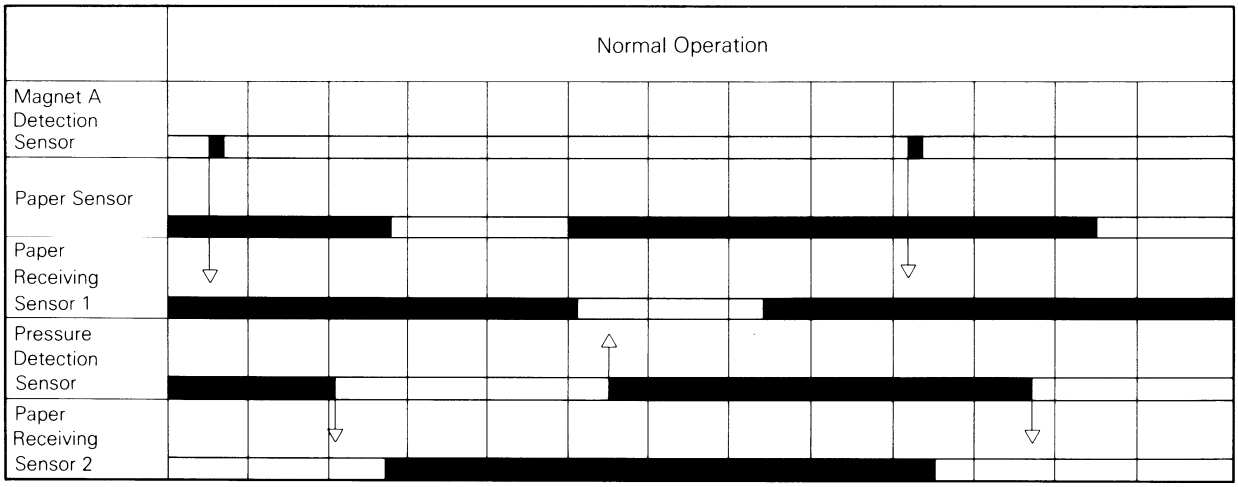


2. The paper separated from the Drum is held by the Suction Unit to the Paper Receiving Table. Since the Transfer Belts are driven by the Main Motor, they rotate in accordance with the rotation speed of the Drum.

3. The Suction Fan rotates at low speed (idling speed) before printing. When the Print Signal is output, it starts to rotate at high speed and rotates at that speed during printing. At the finish of printing, it returns to the low speed after the Drum stops and the trail edge of the printed paper passes thorugh the Paper Receiving Sensor 1.

4. The Suction Switch is installed in the Suction Unit to change the rotation speed of the Suction Fan.

TIMING CHART FOR PAPER PATH (Using a long size sheet of paper)



[TROUBLES DISPLAYED ON LCD]

1. [PAPER JAM: RIGHT SIDE]

(1) After the Paper Receiving Sensor 1 detected no paper during the Magnet A Detection, the Paper Sensor also detects no paper during the next Magnet A Detection.
EX.: The printed paper has stuck on the Drum.

(2) The moment the Pressure Detection Sensor has just detected the cut part of the Pressure Sensor Disc, the Paper Receiving Sensor 1 is detecting paper.
EX.: The Pressure Roller starts to go up when the Paper Receiving Sensor 1 is still detecting paper.

(3) The moment the Pressure Detection Sensor has just detected the uncut part of the Pressure Sensor Disc, the Paper Receiving Sensor 2 is detecting paper.
EX.: The first copy has not been received by the Paper Receiving Table when the second copy is delivered near the Paper Receiving Sensor 2.

2. [PAPER JAM: LEFT SIDE]

(1) After the Paper receiving Sensor 1 detected no paper during the Magnet A Detection, the Paper Sensor does detect paper during the next Magnet A Detection.
EX.: Paper has not fed from the Second Paper Feed Area to the Drum.

(2) When the Magnet A has been detected 3 times in a row without the Paper Sensor detecting paper.
EX.: Paper does not feed to the Second Paper Feed Area.

(3) When the Magnet A has been detected 3 times in a row with the Paper Sensor detecting paper.
EX.: The Second Paper Feed is not operating correctly.

★ For adjustment refer to page **26** in **PART 3.**

6. MASTER-MAKING AREA

[FUNCTION OF SENSORS]

1. **Master-making Unit Switch**
   The Master-making Unit Switch detects whether the Master-making Unit is opened or closed.

2. **Master End Sensor**
   The Master End Sensor detects the end of the Master Roll by a black end mark of the Master Roll.

3. **Original Detection Sensor**
   The Original Detection Sensor detects whether the original is in the Original Holder.

4. **Image Scanner**
   The Image Scanner is for reading the original.

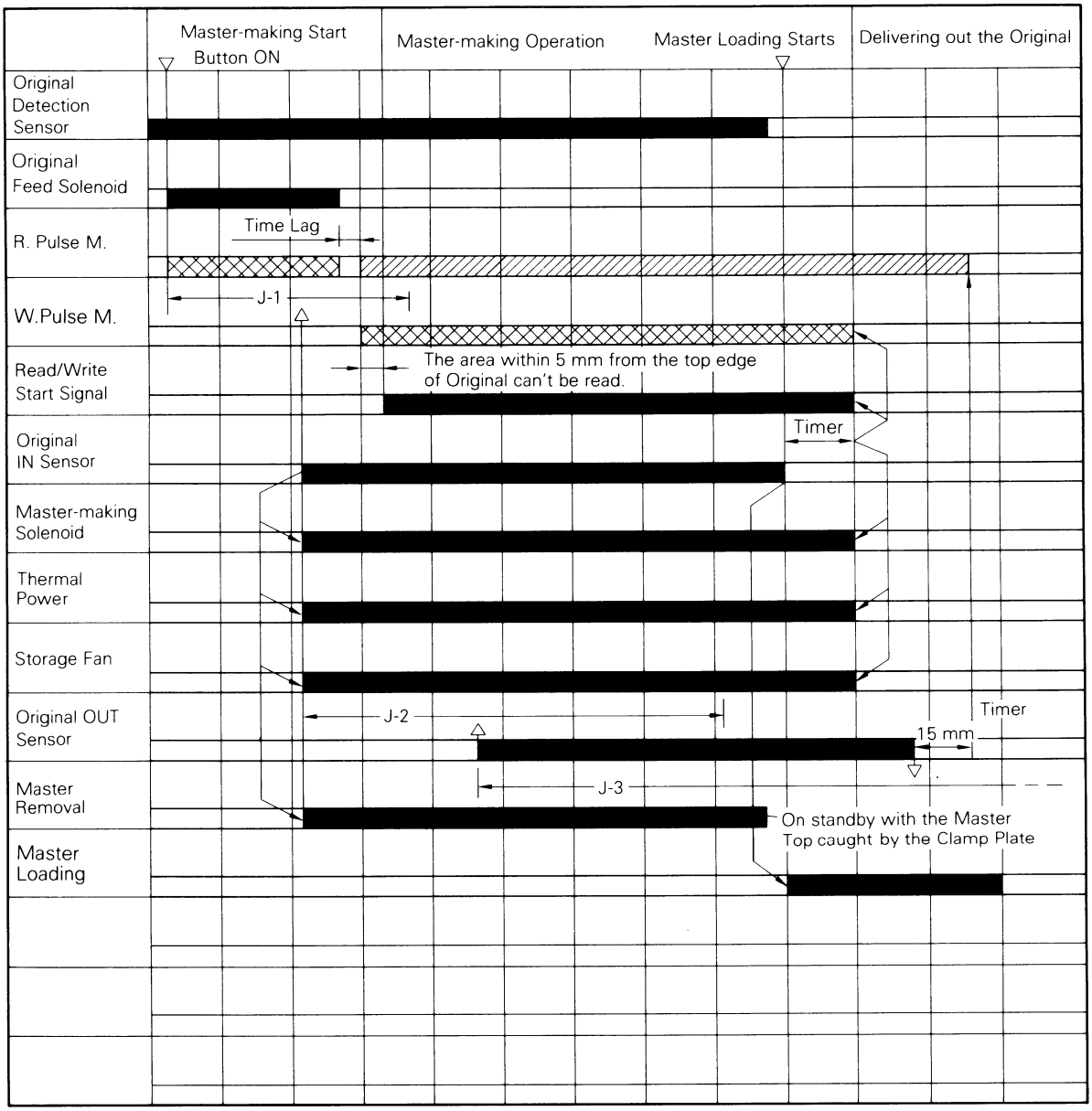
5. **Master Detection Sensor**
   The Master Detection Sensor detects whether the Master is correctly in.

6. **Cover Safety Switch**
   The Cover Safety Switch cuts the power off when the upper cover of the Master making Unit is open.

7. **Original IN Sensor**
   The Original IN Sensor detects the original has reached the Image Scanner, and makes the Master removal start.

8. **Original OUT Sensor**
   The Original OUT Sensor detects the original has passed through the Image Scanner.

TIMING CHART FOR MASTER MAKING



Notes:

1. ■ = ON □ = OFF ▨ = Forward ▨ = Reverse
2. ↑ . ↓ ; indicate the mutual relationship.
3. ‹J-1›, ‹J-2›, ‹J-3› stand for "Original Jam".

‹J-1›: Original IN Sensor must be cut ON within the fixed time.
‹J-2›: Original OUT Sensor must be cut ON within the fixed time after Original IN Sensor has been cut ON.
‹J-3›: Original must have been through Original Out Sensor within the fixed time. (The original longer than 400mm (15.5") causes "Original Jam".)

[MECHANISM (WITH A TIMING CHART)]

1. **By pressing the Master-making button:**
   (1) The Original Feed Solenoid works and the original is pressed on the roller by the Guide A.
   (2) The Read Pulse Motor rotates to feed the original into the Image Scanner by the Original Feed Roller.

2. **When the lead edge of the original is detected by the Original IN Sensor:**
   (1) The Master-making Solenoid functions to press the Thermal Head to theMaster.
   (2) The Storage Fan starts its function.
   (3) The Thermal Power starts its function.
   (4) The Master Removal starts.

3. **After the fixed period (0.6 sec.) since the Original IN Sensor detects the lead edge of the original:**
   (Here the front most tip of the original comes at the Image Scanner.)
   (1) Read Pulse Motor stops and then starts to feed the original further by Read Roller and Exit Roller, rotating reversely.
   (2) Write Pulse Motor starts to rotate and feeds the Master by Write Roller.

4. **After Write Pulse Motor starts and the original feeds 5mm into the Image Scanner:**
   (1) Read and Write start. (The Master-making starts)

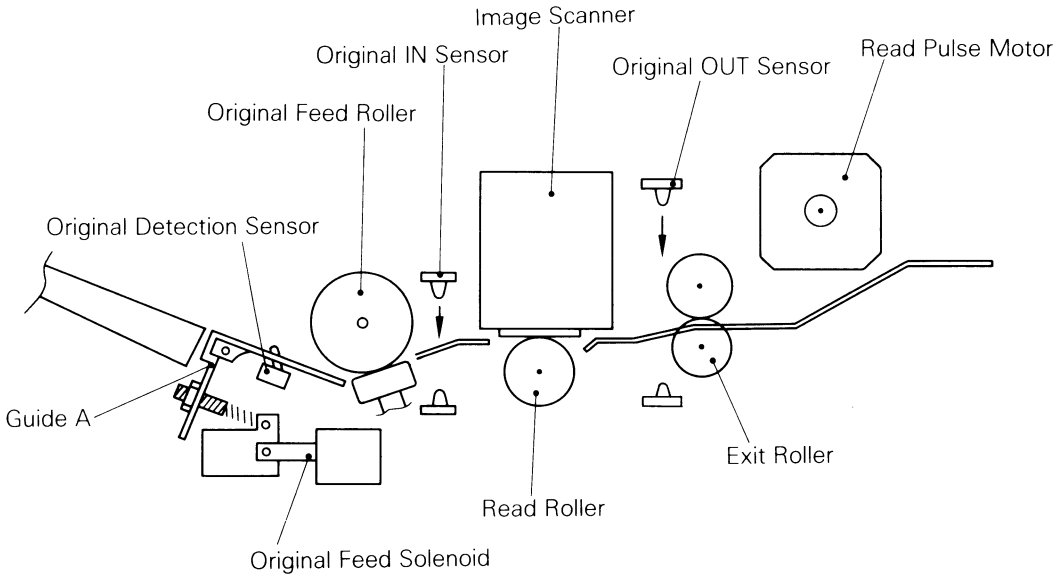
5. The original continuously feeds and the Original OUT Sensor detects the lead edge of the original and there is no change in action in this process.

6. After the original is through the Original IN Sensor, the process of Master Loading starts. (Here the Master Delivery is already finished and in standby)

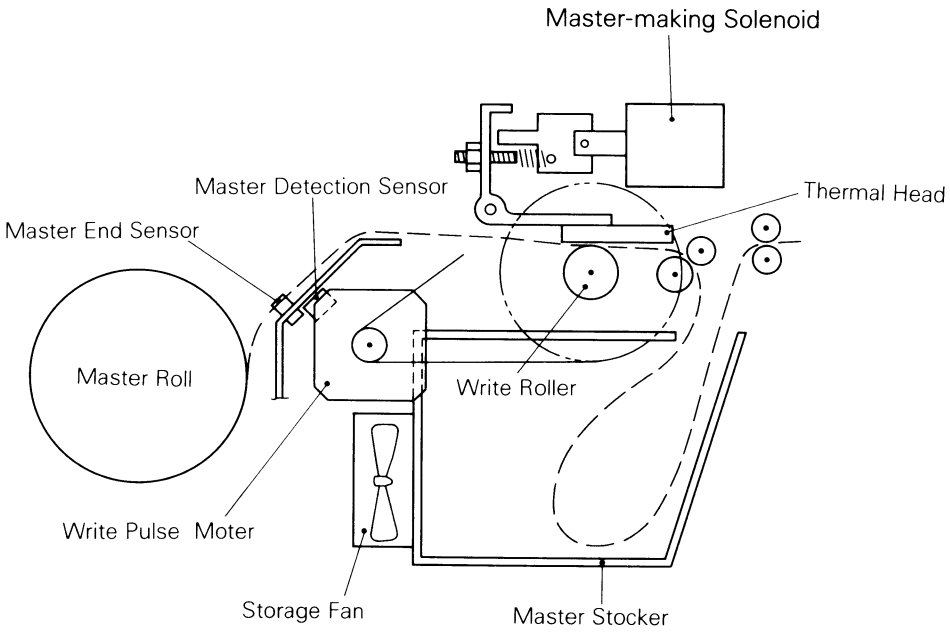
7. **After the original is through the Original IN Sensor, in the fixed period:**
   (1) Read and write finish.
   (2) The rotation of Write Pulse Motor stops.
   (3) The Master-making Solenoid goes off and the Thermal Head detouches from the Master.
   (4) The rotation of the Storage Fan stops.
   (5) The action of the Thermal Power stops. (In this stage the original is still moving because Read Pulse Motor rotates to exit the original.)

8. **After the original is completely through the Original OUT Sensor, in the fixed period:**
   (1) The rotation of Read Pulse Motor stops.

= CROSS SECTIONAL VIEW =



‹Read the Original›



‹Write on the Master›

TROUBLES DISPLAYED ON LCD

1. [ORIGINAL JAM]

(1) When the Original IN Sensor was not cut within the fixed period after the Master-making starts. **‹J-1›**

(2) When the Original OUT Sensor was not cut within the fixed period after the Original IN Sensor was cut. **‹J-2›**

(3) When the Original OUT Sensor has been cut for over the fixed period. **‹J-3›**

(4) When the original remains in the area of the Original IN Sensor or Original OUT Sensor.
(As for J-1, 2, 3, refer to the Timing Chart for Master-making.)

★ For drive adjustment, refer to page **27** to **30** in **PART 3.**
★ For sensor adjustment, refer to page **38** to **41** in **PART 3.**

7. CARRIER AND CLAMP AREA

[FUNCTION OF SENSORS]

1. Master Sensor

The Master Sensor detects the Master at the following 3 positions:

[I-1 position]

Checks whether the Master is on the Drum when printing has started.

Checks whether the used Master is on the Drum when Master Removal has started.

[I-3 position]

Checks Cut Error after Master-making is completed and the Master is loaded on the drum.

[Magnet A Detection position]

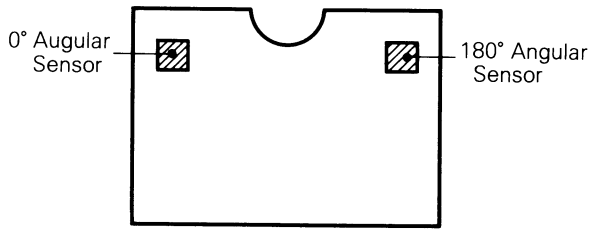
Detects that a new Master is carried to the Clamp after the used Master is removed. Then stops the Loading Motor and makes the Master Removal Hook return to the original position.

2. Clamp 0° Angular Sensor

The Clamp 0° Angular Sensor detects that the Clamp Plate is closed.

3. Clamp 180° Angular Sensor

The Clamp 180° Angular Sensor detects that the Clamp Plate is open.



4. Clamp Safety Sensor

When the Clamp Safety Sensor does not detect the edge of the Clamp Motor Bracket, the Main Motor does not rotate for safety.

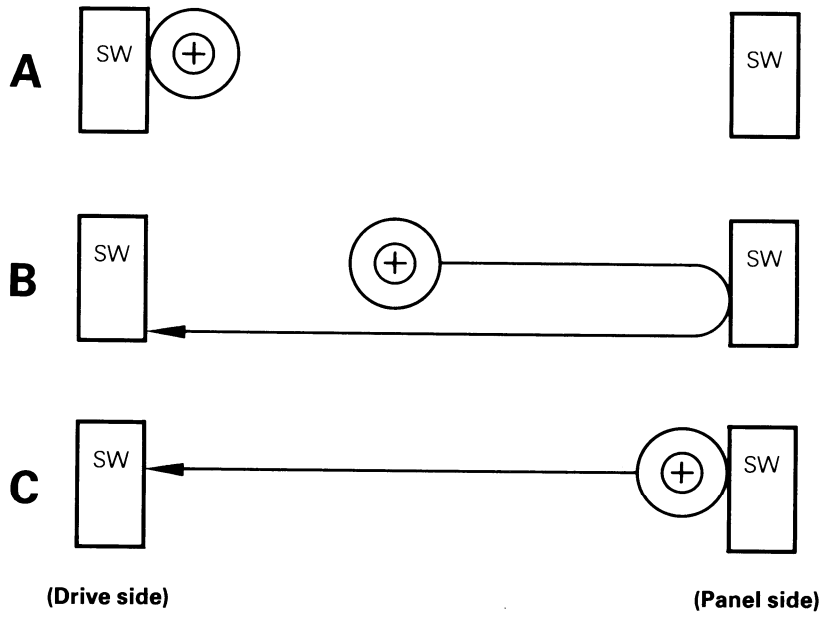
5. Cutter Position Switch

The Cutter Position Switches are located on both sides of the machine (Drive side and Panel side) and detects the position of the Cutter Disc.

[MECHANISM]

[1] Master cut

1. The Master is cut by the Cutter Disc which shuttles between the two switches, on the drive side and the panel side.
2. The Cutter Disc normally locates at the drive side switch. If the Cutter Disc is not in the normal position when the power is turned on, or when the reset button is pressed after a certain trouble, the disc returns to its normal position as described below.



Case A:

If the drive side switch is pressed, the disc keeps its present position.

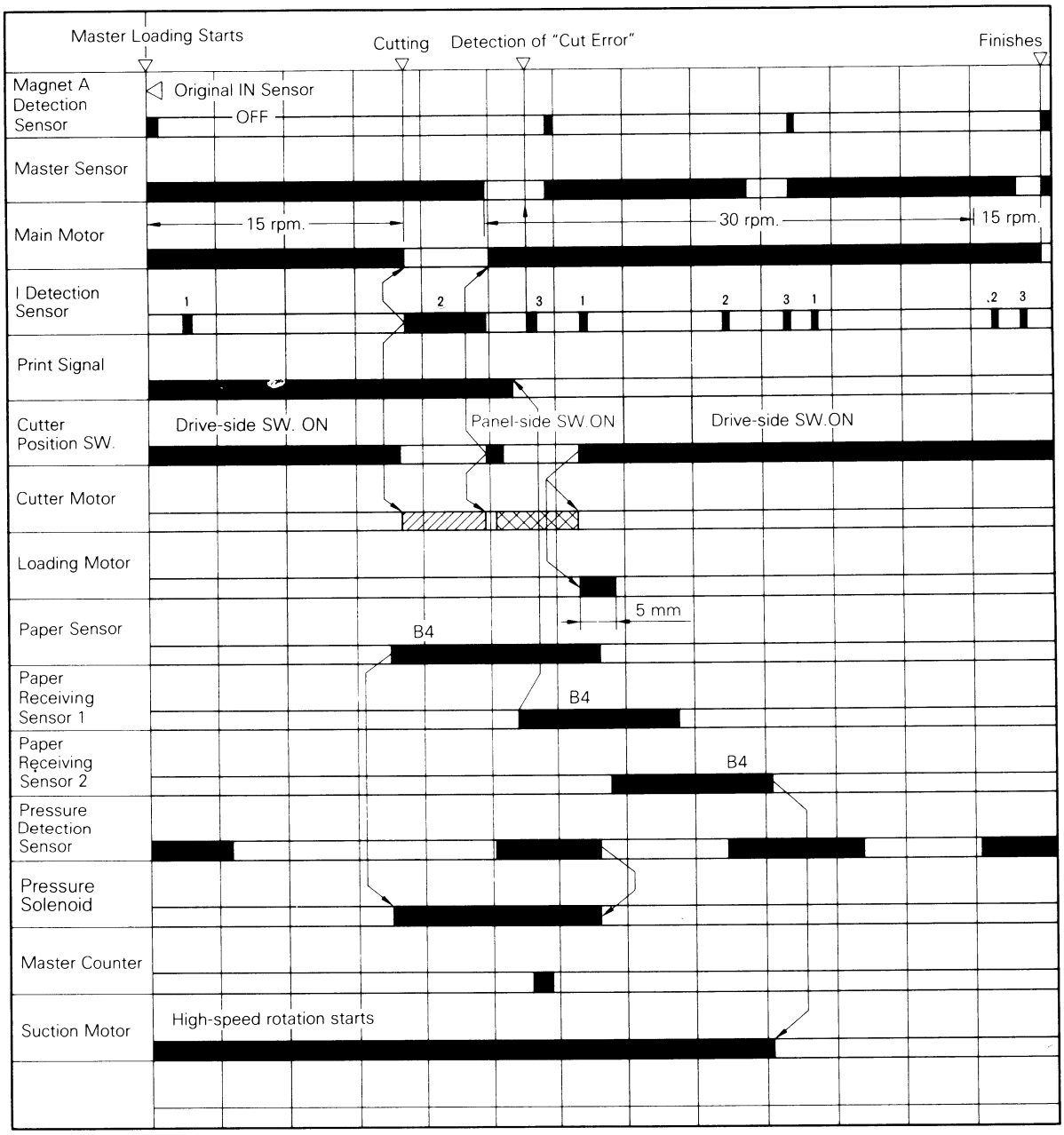
Case B:

If neither of the switches are pressed, the disc goes to the panel side and returns.

Case C:

If the panel side switch is pressed, the disc just returns.

TIMING CHART FOR MASTER LOADING



Note:

1. ■ = ON □ = OFF ▨ = Forward ▩ = Reverse
2. ↑.↓ ; indicate the mutual relationship.
3. ① = I-1 ② = I-2 ③ = I-3

[2]. Explanation of movements (with a Timing Chart for Master Loading)

1. After the original goes through the original IN Sensor:
(1) Print signal is output so that the paper would be fed for one test copy. (The signal stops when the Paper Receiving Sensor 1 is cut by the test copy.)
(2) The Suction Motor, to deliver paper, changes from the idling condition to a high speed rotation. (The Suction Motor goes back to the idling condition after the paper went through the Paper Receiving Sensor 2.)
(3) The Drum begins to rotate in 15rpm. (Low test print speed=free rotation speed)

2. After the Paper Sensor in the second paper feed area is cut by the paper:
(1) The Pressure Solenoid works. (The solenoid goes off when the Pressure Detection Sensor detects the non-cut part of the Pressure Sensor Disc.)

3. The Drum rotates and the I-2 slit of I disc is detected:
(1) The Drum stops its rotation.
(2) The Cutter Motor begins to rotate to cut the Master. (This moves the Cutter Disc from the drive side to the panel side)

4. The Cutter Disc moves to the panel side and the Cutter Position Switch at the panel side is pressed:
(1) The Cutter Motor begins reverse rotation, and the Cutter Motor stops. (This moves the cutter disc from the panel side to the drive side)
(2) The Loading Motor rotates and advances the master 5mm more beyond the Cutter.

5. The Drum rotates and the I-3 slit of I Disc is detected:
(1) Master cut error is checked by the Master Sensor, and the Master counter increases by one if no error happens.
(2) The Drum begins to rotate at 30rpm.

6. The Drum rotates 2 times and the Pressure Detection Sensor detects the cut part of the Pressure Sensor Disc:
(1) The rotation speed goes down to 15rpm and stops at the home position.

[TROUBLES DISPLAYED ON LCD]

1. [T3: CALL SERVICE]

(1) When the Clamp Solenoid is engaged and the Clamp Motor Plate is still detected for 1.5 seconds by the Clamp Safety Sensor. Or when the Clamp Motor Plate is not detected within 1.5 seconds after the Clamp Solenoid has been disengaged.

(2) The Clamp Safety Sensor is not detecting the Clamp Motor Plate when the Clamp Solenoid is not in use.

(3) When it took over 7 seconds for clamp open/close process.

2. [MASTER CUT: MALFUNCTION]

(1) When it took over 3 seconds for the Cutter Disc to move from the panel side to the drive side, or the drive side to the panel side.

(2) When the Master Sensor detected the Master at I-3 position after cutting.

(3) In the Master-loading no cutting action is done by the next Magnet A Detection. (In case that I detection can't be performed.)

3. [MASTER MIS-FEED: RESET]

(1) When it took over 4 seconds from the start of the Loading Motor rotation to the Master detection by the Master Sensor.

★ For drive adjustment, refer to page **33** to **36** in **PART 3.**

★ For sensor adjustment, refer to page **46** in **PART 3.**

8. MASTER REMOVAL AREA

[FUNCTION OF SENSORS]

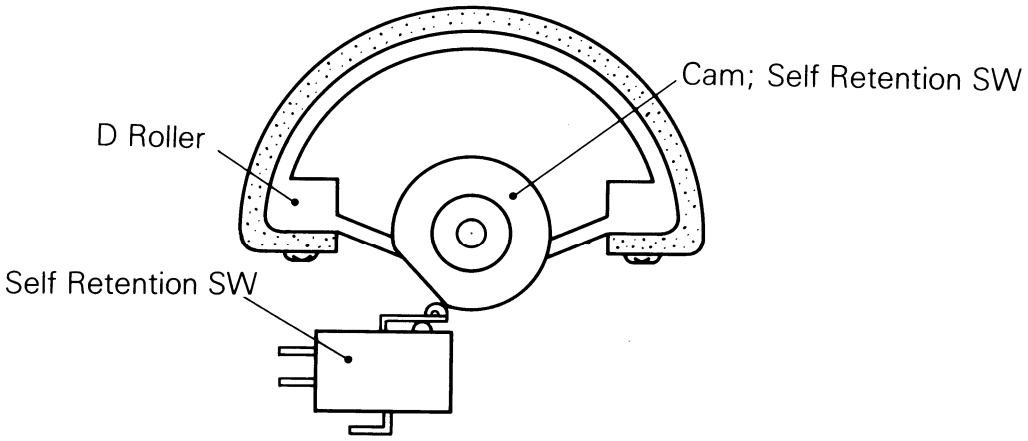
1. **Master Removal Sensor**
   The Master Removal Sensor checks whether the Master is present in the Master Removal Unit. (It checks whether the used Master comes into the Unit and whether the used Master has been disposed to the Disposal Box.)

2. **Master Over Switch**
   The Master Over Switch detects the Master Disposal Box is full.

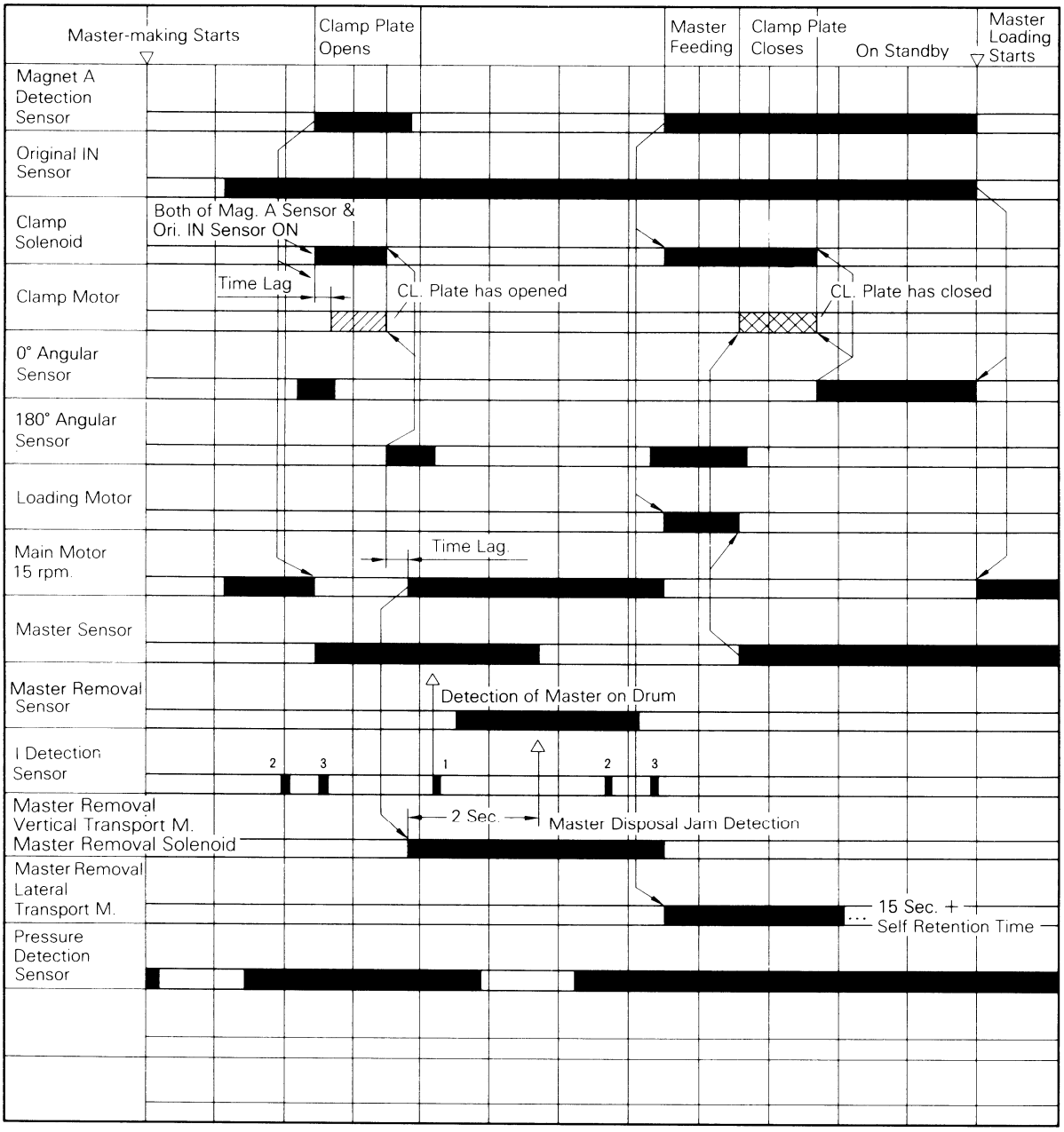
3. **Master Box Switch**
   The Master Box Switch detects whether the Master Disposal Box is set correctly.

4. **Master Removal Cover Switch**
   The Master Removal Cover Switch detects whether the Master Removal Cover is set correctly.

5. **Self Retention Switch**
   The Self Retention Switch stops the D Roller, when the round part of the D Roller has faced up.



TIMING CHART FOR MASTER REMOVAL



Note:

1. ■ = ON □ = OFF ▨ = Forward ▩ = Reverse
2. ↑.↓ ; indicate the mutual relationship.
3. ① = I-1 ② = I-2 ③ = I-3

[MECHANISM (WITH A TIMING CHART]

1. **When the Original IN Sensor detects the lead edge of the original after pressing the Master-making button:**
   (1) If the Drum is not at the home position and the Magnet A is not detected, the Drum rotates at 15 rpm and stops at the home position.
   (If the Drum is at the home position, the action directly starts from (2.))
   (2) By the Clamp Solenoid and the Clamp Motor, the Clamp Plate on the Drum starts to open.

2. **The Clamp Plate opens and the Angular Magnet is detected by 180° Angular Sensor:**
   The Clamp Solenoid goes off and the Clamp Motor disengages.

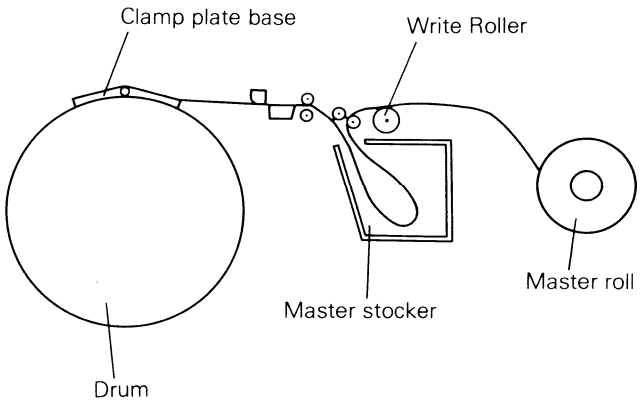
3. **After the Clamp Plate opens and the Angular Magnet is detected by 180 Angular Sensor:**
   (1) The Master Removal Vertical Transport Motor starts to rotate and the Master Removal Hook comes out. The Drum rotates at 15 rpm and the Master Removal Hook begins to transport the used Master into the Master Removal Unit.

4. **After one rotation of the Drum and the detection of Magnet A:**
   (1) Finishes the action of the (3)-1. (The Master Vertical Transport Motor stops, and the Master Removal Hook goes back in.)
   (2) The Master Removal Lateral Transport Motor starts to rotate and the Master is transported into the Master Disposal Box.
   (This action stops after the fixed period of time, then the Self Retention Switch goes off.)
   (3) By the Clamp Solenoid the Clamp Motor is lowered.
   (4) The Loading Motor starts to rotate and the Master is carried to the Clamp Plate.

5. **The Master is carried and the Master Sensor detects the lead edge:**
   (1) The rotation of the Loading Motor stops.
   (2) The Clamp Motor starts to rotate and the Clamp Plate begins to close.

6. **The Clamp Plate closes and the Angular Magnet is detected by the 0° Angular Sensor:**
   (1) The Clamp Solenoid goes off and the Clamp Motor stops and disengages.
   (2) The machine is on standby till the original is through the Original IN Sensor.
   (3) Then the Master-loading starts.

<The state of "on standby">



[TROUBLES DISPLAYED ON LCD]

1. [MASTER DISPOSAL JAM]

(1) When the Master Removal Sensor is cut off at the start of the Master-making process or the confidential operation.

2. [USED MSTR NOT DISCHARGED]

(1) When it took over 2 seconds to cut the Master Removal Sensor after the beginning of the rotation of the Master Removal Vertical Transport Motor.

3. [CHECK MSTR DISPOSAL BOX]

(1) When the Master Over Switch is on or the Master Box Switch is not on.

★ For drive adjustment refer to page **36** & **37** in **PART 3.**
★ For sensor adjustment refer to page **46** in **PART 3.**